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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--------------------------------|-------------|----------------------|---------------------|------------------|
| 09/970,605 | 10/04/2001 | Claudine Raibaut | TIF-31735 | 2694 |
| 23494 | 7590 | 05/20/2004 | EXAMINER | |
| TEXAS INSTRUMENTS INCORPORATED | | | THOMPSON, ANNETTE M | |
| P O BOX 655474, M/S 3999 | | | ART UNIT | PAPER NUMBER |
| DALLAS, TX 75265 | | | 2825 | |

DATE MAILED: 05/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/970,605

Applicant(s)

RAIBAUT ET AL.

Examiner

A. M. Thompson

Art Unit

2825

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

1. Applicants' Amendment has been examined and remarks considered. Claims 1, 8, 16, and 17 are amended. Claims 1-19 are pending.
2. Applicants' Response is not considered persuasive and the substantive rejections of the prior office action are incorporated herein.

Claim Objections

3. Claim 8 is objected to because of the following informalities: Pursuant to claim 8, at line 8, "can" is considered precatory language; change can to - is- -or some other definite language. Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Rejection of Claims 1-19

5. Claims 1-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Varadarajan et al., U.S. Patent 5,838,583. Varadarajan discloses a method and system for the optimized placement and routing of datapaths.
6. Pursuant to claim 1, which recites [a] method of controlling layouts of cells in an integrated circuit including datapath cells in a structured layout and other cells in an unstructured layout (see Abstract), comprising the steps of generating a description of a desired layout for the datapath cells (col. 3, ll. 38-50); transferring said description to a

place and route tool to assign the desired layout to the datapath cells within the place and route tool (col. 3, ll. 38-50); assigning a fixed status to the datapath cells to prevent movement of the cells (see Fig. 2, #216, the cluster constraints; col. 7, line 64 to col. 8, line 3; see also col. 15, line 45 to col. 16, line 7); prior to routing the datapath cells (see also col. 3, ll. 25-28, wherein the placement occurs prior to routing), transferring desired criteria regarding the other cells to the place and route tool (col. 3, line 66 to col. 4, line 3); optimizing the layout based on said desired criteria, such that the datapath cells are unmoved as different layout iterations are performed on the other cells (col. 4, lines 4-28).

7. Pursuant to claim 2 further comprising the step of inputting information on said datapath and other cells to the place and route tool (col. 14, ll. 20-38).

8. Pursuant to claim 3, wherein said step of generating a description comprises the step of generating one or more matrices for defining placement of said datapath cells (Fig. 3, Fig. 14, col. 17, ll. 11-56).

9. Pursuant to claim 4, wherein the step of generating one or more matrices comprises the step of generating matrices having two or more matrices with interleaved rows (col. 16, line 56 to col. 17, line 56 discloses interleaving).

10. Pursuant to claim 5, wherein said step of generating one or more matrices comprises the step of generating matrices having two or more matrices with interleaved columns (col. 17, ll. 31-48; claim 2).

11. Pursuant to claim 6, wherein said step of generating matrices comprises the steps of generating matrices of slots ordered in a row and column format (Figs. 6a, 14a,

Art Unit: 2825

14b) leaving free space between slots for datapath cells in which ones of said other cells are placed (col. 14, lines 15-38).

12. Pursuant to claim 7, wherein said step of transferring desired criteria comprises the step of transferring timing criteria for the other cells to the place and route tool (col. 14, line 59 to col. 15, line 40).

13. Pursuant to claim 8 which recites an apparatus comprising a place and route tool (see Fig. 1, 2); a datapath generator for generating a description of a desired layout for the datapath cells (Figs. 1, 2), transferring said description to a place and route tool to assign the desired layout to the datapath cells within the place and route tool (col. 3, ll. 38-50), prior to routing the datapath cells (see also col. 3, ll. 25-28, wherein the placement occurs prior to routing), wherein a fixed status can be assigned to the datapath cells in said place and route tool to prevent movement of the cells during optimization of the layout of the other cells (col. 15, ll. 45-67 discloses use of the cluster constraints).

14. Pursuant to claim 9, wherein the place and route tool receives information on the datapath and other cells (col. 14, ll. 20-38).

15. Pursuant to claim 10, wherein the datapath generator generates a description of one or more matrices for defining placement of said datapath cells (Fig. 3, Fig. 14, col. 17, ll. 11-56).

16. Pursuant to claim 11, wherein said datapath generator generates a description of two or more matrices with interleaved rows (col. 16, line 56 to col. 17, line 56 discloses interleaving).

Art Unit: 2825

17. Pursuant to claim 12, wherein said datapath generator generates a description of two or more matrices with interleaved columns (col. 17, ll. 31-48; claim 2).

18. Pursuant to claim 13 wherein said datapath generates a description of a plurality of matrices of slots for datapath cells ordered in a row and column format (Figs. 6a, 14a, 14b) leaving free space between slots of said matrices in which ones of said other cells are placed (col. 14, lines 15-38).

19. Pursuant to claim 14, wherein said place and route tool may generate an optimized layout of said other cells based on desired constraints. (col. 14, line 59 to col. 15, line 40)

20. Pursuant to claim 15, wherein said desired constraints include timing constraints (col. 14, line 59 to col. 15, line 40).

21. Pursuant to claims 16-19, Varadarajan also teaches the limitations of leaving spaces and free spaces between selected columns and rows (see columns 16 and 17).

Remarks

22. Applicant asserts that Varadarajan does not fix datapath functions relative to standard cells but only fixes datapath functions relative to other datapath functions. However, that is only one embodiment of Varadarajan. Varadarajan also discloses fixing datapath functions relative to standard cells; see figure 9, and column 14, lines 20-38.

Conclusion

23. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 2825

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

24. Any inquiry concerning this communication or earlier communications should be directed to Examiner A.M. Thompson whose telephone number is (571) 272-1909. The Examiner can usually be reached Monday thru Friday from 8:00 a.m. to 4:30 p.m.. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Matthew S. Smith, can be reached on (571) 272-1907.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1562 or the Customer Service Center whose telephone number is (571) 272-1750.

25. Responses to this action should be mailed to the appropriate mail stop:

Mail Stop _____

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

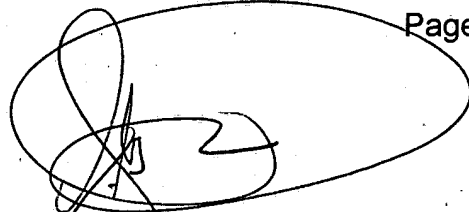
or faxed to:

(703) 872-9306, (for all **OFFICIAL** communications intended for entry)

Application/Control Number: 09/970,605

Art Unit: 2825

Page 7

A handwritten signature in black ink, consisting of a large, stylized 'A' followed by 'M. THOMPSON' in a cursive script.

A. M. THOMPSON
Primary Examiner
Technology Center 2800